UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,157	02/11/2004	Timo Vaananen	KOLS.087PA	3095

7590 05/03/2007

Hollingsworth & Funk, LLC
8009 34th Avenue South
Suite 125
Minneapolis, MN 55425

EXAMINER	
TRAN, TUAN A	

ART UNIT	PAPER NUMBER
2618	

MAIL DATE	DELIVERY MODE
05/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/776,157	VAANANEN, TIMO	
	Examiner	Art Unit	
	Tuan A. Tran	2618	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 1, 3, 8-9, 11 are objected to because of the following informalities: the phrase "the harmonic frequencies of the clock signal on the given radio channel" should be changed to "harmonic frequencies on the given radio channel" for consistency with the Specification, page 5 [0028]. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scott et al. (6,163,687) in view of Harada (6,711,229).

Regarding claims 1-3 and 8, Scott discloses a radio apparatus (See fig. 1) comprising: means for communicating on at least one radio frequency channel; means (an analog part and a controller) 20 for measuring carrier-to-noise ratio (CNR) on the given radio channel (it is widely known that in order to determine CNR, peaks in the signal strength of the received signal are measured); and means (the controller 30) for controlling (tuning) PLL (phase lock loop) 24 on the basic of the measurement to lock-on the given radio channel in order to eliminate interference (internal and external

interferences) and compensate for frequency offset (See figs. 1-2 and col. 2 line 7 to col. 4 line 23). However, Scott does not mention that the PLL is tuned by controlling the pulse width of a clock signal generated by a clock signal generator on the basic of the measurement of interference level arising from harmonic frequencies on the given radio channel. Since Scott does suggest a relationship between the CNR and interference including external interference that is widely known to include harmonic frequencies components on a communication channel (see Scott, col. 1 lines 16-30), and Harada teaches a tunable PLL wherein the PLL is tuned by controlling the pulse width of a clock signal generated by a clock signal generator to lock on a given radio channel (See fig. 1 and col. 7 line 19 to col. 8 line 8); therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to take the interference level of the harmonic frequencies into considerations as one of a plurality of tuning parameter of the PLL for the advantage of enhancing the signal analysis in order to provide a more effective tuning process to eliminate interference. Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the tunable PLL taught by Harada for the system as disclosed by Scott for the advantage of shortening a lock-up time on the given channel of the system as suggested by Harada (See Harada, col. 4 lines 44-46).

Claims 9-11 are rejected for the same reasons as set forth in claims 1-3, as method.

Regarding claim 4, Scott & Harada disclose as cited in claim 3. Harada further discloses an output of the controller is connected to an input of a D/A converter 12, which outputs controls the pulse width of the clock signal (See fig. 1).

Regarding claims 5-7 and 15-17, Scott & Harada disclose as cited in claims 1 and 3. However, they do not mention that the apparatus is a radio transceiver of a cellular system, wherein the apparatus is arranged to communicate on a radio channel using a predetermined frame structure and to control the pulse width of the clock signal (frequency tuning) prior starting communication on the radio channel or on a frame-by-frame basic. Since it is widely known in the art that frequency tuning is required during the establishment of initial synchronization prior actual communication as well as communication system utilized frame structure and frequency hopping (frame-by frame) (i.e. GSM-TDMA cellular phone); therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made configure the GSM-TDMA cellular phone, for instant, with features suggested by Scott & Harada such that frequency tuning is performed during the initial synchronization as well as during the hopping for the advantage of synchronizing and operating effectively with the network.

Claims 12-14 are rejected for the same reasons as set forth in claims 5-6 and 15-16, as method.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Kohno (6,987,794).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A. Tran whose telephone number is (571) 272-7858. The examiner can normally be reached on Mon-Fri, 10:00AM-6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tuan Tran
AU 2618